

S/N 10/040,100

AMENDMENTS TO THE CLAIMS:

5 This listing of claims will replace all prior versions, and listings, of claims in the application.

Please amend claims 1 – 11, 19, 21, 39 – 43, and 46 – 49, withdraw claims 23 – 38, and add new claims 54 – 67, as follows:

1 (Currently Amended). An apparatus for adaptive multimedia transmission and
10 reception, the apparatus comprising:
a network interface;
a plurality of heterogeneous computational elements, ~~the plurality of heterogeneous computational elements including a first computational element and a second computational element, the~~ a first computational element of the plurality of
15 heterogeneous computational elements having a first fixed architecture and ~~a the second computational element of the plurality of heterogeneous computational elements~~ having a second, different fixed architecture; and architecture, the first fixed architecture being different than the second fixed architecture; and
an interconnection network coupled to the network interface and to the
20 plurality of heterogeneous computational elements, the interconnection network adapted, in response to first configuration information, to configure a first plurality of input and output data connections among ~~operative to configure~~ the plurality of heterogeneous computational elements for a first media functional mode of a plurality of media functional modes, ~~in response to first configuration information,~~ and the interconnection
25 network further adapted, in response to second configuration information, to configure a second plurality of input and output data connections among ~~operative to reconfigure~~ the plurality of heterogeneous computational elements for a second, different media functional mode of the plurality of media functional modes, the plurality of media functional modes comprising an acquisition mode and a traffic mode. ~~in response to~~
30 ~~second configuration information, the first media functional mode being different than the second media functional mode.~~

S/N 10/040,100

2 (Currently Amended). The apparatus of claim 1, wherein the plurality of media functional modes further comprises ~~include an acquisition mode, a traffic mode, and an~~ idle mode.

5 3 (Currently Amended). The apparatus of claim 1, ~~claim 2~~, wherein the acquisition mode includes a channel acquisition mode and a control processing mode.

4 (Currently Amended). The apparatus of claim 1, ~~claim 2~~, wherein the traffic mode includes a voice reception mode, a voice transmission mode, and a control processing
10 mode.

5 (Currently Amended). The apparatus of claim 1, ~~claim 2~~, wherein the traffic mode includes a data reception mode, a data transmission mode, a data processing mode, and a control processing mode.

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6 (Currently Amended). The apparatus of claim 1, ~~claim 2~~, wherein the traffic mode includes a media reception mode, a media transmission mode, a media processing mode, and a control processing mode.

20 7 (Currently Amended). The apparatus of claim 4, ~~claim 2~~, wherein the control processing mode includes processing of a plurality of GSM control channels, the plurality of GSM control channels including a broadcast control channel (BCCH), a frequency-correction channel, a synchronization channel (SCH), a plurality of common control channels (CCCH), a slow associated control channels (SACCH), and a fast associated
25 control channel (FACCH).

8 (Currently Amended). The apparatus of claim 1, wherein the interconnection network is further adapted to configure a third plurality of input and output data connections among ~~operative to configure~~ the plurality of heterogeneous computational
30 elements for media reception on a plurality of frequencies.

S/N 10/040,100

9 (Currently Amended). The apparatus of claim 1, wherein the interconnection network is further adapted to configure a third plurality of input and output data connections among ~~operative to configure~~ the plurality of heterogeneous computational elements for media reception in a plurality of time division multiple access (TDMA) time slots.

10 (Currently Amended). The apparatus of claim 1, wherein the interconnection network is further adapted to configure a third plurality of input and output data connections among ~~operative to configure~~ the plurality of heterogeneous computational elements for media transmission on a plurality of frequencies.

11 (Currently Amended). The apparatus of claim 1, wherein the interconnection network is further adapted to configure a third plurality of input and output data connections among ~~operative to configure~~ the plurality of heterogeneous computational elements for media transmission in a plurality of time division multiple access (TDMA) time slots.

12 (Original). The apparatus of claim 1, further comprising:
a timing unit coupled to the network interface, to plurality of heterogeneous computational elements and to the interconnection network, the timing unit operative to provide synchronization and over sampling.

13 (Original). The apparatus of claim 12, wherein the timing unit is comprised of a plurality of heterogeneous computational elements and interconnection network.

14 (Original). The apparatus of claim 1, further comprising:
a memory coupled to the plurality of heterogeneous computational elements and to the interconnection network, the memory operative to store the first configuration information and the second configuration information.

S/N 10/040,100

15 (Original). The apparatus of claim 1, wherein the first configuration information and the second configuration information are stored in a second plurality of heterogeneous computational elements configured for a memory functional mode.

- 5 16 (Original). The apparatus of claim 1, wherein the first configuration information and the second configuration information are stored as a configuration of the plurality of heterogeneous computational elements.

- 10 17 (Original). The apparatus of claim 1, wherein the first fixed architecture and the second fixed architecture are selected from a plurality of specific architectures, the plurality of specific architectures including functions for memory, addition, multiplication, complex multiplication, subtraction, synchronization, queuing, over sampling, under sampling, adaptation, configuration, reconfiguration, control, input, output, and field programmability.

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- 18 (Original). The apparatus of claim 1, further comprising:

- a controller coupled to the plurality of heterogeneous computational elements and to the interconnection network, the controller operative to direct and schedule the configuration of the plurality of heterogeneous computational elements for
20 the first functional mode and the reconfiguration of the plurality of heterogeneous computational elements for the second functional mode.

S/N 10/040,100

19 (Currently Amended). The apparatus of claim 1, further comprising:

a second plurality of heterogeneous computational elements coupled to the interconnection network, the second plurality of heterogeneous computational elements having a third plurality of input and output data connections configured by the
5 interconnection network for a controller operating mode, the configured second plurality of heterogeneous computational elements operative to direct and schedule the configuration of the plurality of heterogeneous computational elements by the
interconnection network for the first media functional mode and ~~the reconfiguration of the plurality of heterogeneous computational elements for the second~~ media functional
10 mode.

20 (Original). The apparatus of claim 1, wherein apparatus is embodied within a mobile station having a plurality of operating modes.

15 21 (Currently Amended). The apparatus of claim 20, claim 18, wherein the plurality of operating modes of the mobile station includes mobile telecommunication, personal digital assistance, multimedia reception, mobile packet-based communication, and paging.

20 22 (Original). The apparatus of claim 1, wherein a first portion of the plurality of heterogeneous computational elements are operating in the first media functional mode while a second portion of the plurality of heterogeneous computational elements are being configured for the second media functional mode.

S/N 10/040,100

23 (Withdrawn). A method for adaptive multimedia transmission and reception, the method comprising:

determining matrix availability of a plurality of adaptive matrices to form a plurality of available adaptive matrices;

5 in response to first configuration information, configuring the plurality of available adaptive matrices for a first media functional mode of a plurality of media functional modes; and

10 in response to second configuration information, configuring the plurality of available adaptive matrices for a second media functional mode of the plurality of media functional modes, the first media functional mode being different than the second media functional mode.

24 (Withdrawn). The method of claim 23, wherein the plurality of media functional modes include an acquisition mode, a traffic mode, and an idle mode.

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25 (Withdrawn). The method of claim 24, wherein the acquisition mode includes a channel acquisition mode and a control processing mode.

26 (Withdrawn). The method of claim 24, wherein the traffic mode includes a voice reception mode, a voice transmission mode, and a control processing mode.

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27 (Withdrawn). The method of claim 24, wherein the traffic mode includes a data reception mode, a data transmission mode, a data processing mode, and a control processing mode.

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28 (Withdrawn). The method of claim 24, wherein the traffic mode includes a media reception mode, a media transmission mode, a media processing mode, and a control processing mode.

S/N 10/040,100

29 (Withdrawn). The method of claim 24, wherein the control processing mode includes processing of a plurality of GSM control channels, the plurality of GSM control channels including a broadcast control channel (BCCH), a frequency-correction channel, a synchronization channel (SCH), a plurality of common control channels (CCCH), a
5 slow associated control channels (SACCH), and a fast associated control channel (FACCH).

30 (Withdrawn). The method of claim 23, further comprising:
configuring the plurality of available adaptive matrices for media reception
10 on a plurality of frequencies.

31 (Withdrawn). The method of claim 23, further comprising:
configuring the plurality of available adaptive matrices for media reception
in a plurality of time division multiple access (TDMA) time slots.

15 32 (Withdrawn). The method of claim 23, further comprising:
configuring the plurality of available adaptive matrices for media
transmission on a plurality of frequencies.

20 33 (Withdrawn). The method of claim 23, further comprising:
configuring the plurality of available adaptive matrices for media
transmission in a plurality of time division multiple access (TDMA) time slots.

25 34 (Withdrawn). The method of claim 23, wherein the method is embodied within a
mobile station having a plurality of operating modes.

35 (Withdrawn). The method of claim 34, wherein the plurality of operating modes
of the mobile station includes mobile telecommunication, personal digital assistance,
multimedia reception, mobile packet-based communication, and paging.

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S/N 10/040,100

36 (Withdrawn). The method of claim 23, wherein a first portion of the plurality of available adaptive matrices are operating in the first media functional mode while a second portion of the plurality of available adaptive matrices are being configured for the second media functional mode.

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37 (Withdrawn). The method of claim 23, further comprising:
configuring the plurality of available adaptive matrices for an idle mode.

38 (Withdrawn). The method of claim 23, further comprising:
10 configuring the plurality of available adaptive matrices for a timing mode,
the timing mode providing synchronization and over sampling.

39 (Currently Amended). An adaptive integrated circuit, comprising:
15 a memory adapted to store configuration information;
a plurality of fixed and differing computational elements; and
an interconnection network coupled to the memory and to the plurality of
fixed and differing computational elements, the interconnection network adapted, in
response to configuration information, to configure a plurality of data input, data output
20 and control communication paths among ~~operative in response to the configuration~~
~~information to configure and reconfigure~~ the plurality of fixed and differing
computational elements for a plurality of media functional modes, the plurality of media
functional modes comprising an acquisition mode and a traffic mode. modes.

25 40 (Currently Amended). The adaptive integrated circuit of claim 39, wherein the
plurality of media functional modes further comprises ~~include an acquisition mode, a~~
~~traffic mode, and~~ an idle mode.

41 (Currently Amended). The adaptive integrated circuit of claim 39, claim 40,
30 wherein the acquisition mode includes a channel acquisition mode and a control
processing mode.

S/N 10/040,100

42 (Currently Amended). The adaptive integrated circuit of claim 39, claim 40, wherein the traffic mode includes a voice reception mode, a voice transmission mode, and a control processing mode.

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43 (Currently Amended). The adaptive integrated circuit of claim 39, claim 40, wherein the traffic mode includes a data reception mode, a data transmission mode, a data processing mode, and a control processing mode.

10 44 (Original). The adaptive integrated circuit of claim 43, wherein the traffic mode includes a media reception mode, a media transmission mode, a media processing mode, and a control processing mode.

15 45 (Original). The adaptive integrated circuit of claim 43, wherein the control processing mode includes processing of a plurality of GSM control channels, the plurality of GSM control channels including a broadcast control channel (BCCH), a frequency-correction channel, a synchronization channel (SCH), a plurality of common control channels (CCCH), a slow associated control channels (SACCH), and a fast associated control channel (FACCH).

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46 (Currently Amended). The adaptive integrated circuit of claim 39, wherein the interconnection network is further adapted to configure the plurality of data input, data output and control communication paths among ~~operative to configure~~ the plurality of fixed and differing computational elements for media reception on a plurality of

25 frequencies.

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47 (Currently Amended). The adaptive integrated circuit of claim 39, wherein the interconnection network is further adapted to configure the plurality of data input, data output and control communication paths among ~~operative to configure~~ the plurality of fixed and differing computational elements for media reception in a plurality of time division multiple access (TDMA) time slots.

S/N 10/040,100

48 (Currently Amended). The adaptive integrated circuit of claim 39, wherein the interconnection network is further adapted to configure the plurality of data input, data output and control communication paths among ~~operative to configure~~ the plurality of
5 fixed and differing computational elements for media transmission on a plurality of frequencies.

49 (Currently Amended). The adaptive integrated circuit of claim 39, wherein the interconnection network is further adapted to configure the plurality of data input, data
10 output and control communication paths among ~~operative to configure~~ the plurality of fixed and differing computational elements for media transmission in a plurality of time division multiple access (TDMA) time slots.

50 (Original). The adaptive integrated circuit of claim 39, wherein adaptive integrated
15 circuit is embodied within a mobile station having a plurality of operating modes.

51 (Original). The adaptive integrated circuit of claim 50, wherein the plurality of operating modes of the mobile station includes mobile telecommunication, personal digital assistance, multimedia reception, mobile packet-based communication, and
20 paging.

52 (Original). The adaptive integrated circuit of claim 39, wherein a first portion of the plurality of fixed and differing computational elements are operating in the first media functional mode while a second portion of the plurality of fixed and differing
25 computational elements are being configured for the second media functional mode.

S/N 10/040,100

53 (Original). The adaptive integrated circuit of claim 39, wherein the plurality of fixed and differing computational elements are selected from a plurality of specific architectures, the plurality of specific architectures including functions for memory, addition, multiplication, complex multiplication, subtraction, synchronization, queuing, over sampling, under sampling, adaptation, configuration, reconfiguration, control, input, output, and field programmability.

54 (New). The apparatus of claim 1, wherein the interconnection network is further adapted to configure the first and second pluralities of input and output data connections among the plurality of heterogeneous computational elements by providing circuit-switched connections for input and output data transfer.

55 (New). The apparatus of claim 1, wherein the interconnection network is further adapted to configure the first and second pluralities of input and output data connections among the plurality of heterogeneous computational elements by providing routing of data packets for input and output data transfer.

56 (New). The apparatus of claim 55, wherein the data packets further comprise routing information for self-routing of the data packets.

57 (New). The apparatus of claim 1, wherein the interconnection network further comprises a plurality of levels of interconnection, a first level of interconnection of the plurality of levels of interconnection adapted to route a plurality of data packets as the configuration of the first and second pluralities of input and output data connections.

58 (New). The apparatus of claim 57, wherein a second level of interconnection of the plurality of levels of interconnection is adapted to provide circuit-switched connections for input and output data transfer as the configuration of the first and second pluralities of input and output data connections.

S/N 10/040,100

59 (New). The apparatus of claim 1, wherein the network interface is a wireless communication network interface.

60 (New). A mobile communication apparatus for wireless communication within a
5 wireless network, comprising:
a network interface for wireless communication with a base station
transceiver;
a memory adapted to store configuration information;
a plurality of fixed and differing computational elements; and
10 an interconnection network coupled to the network interface, to the
memory and to the plurality of fixed and differing computational elements, the
interconnection network adapted, in response to configuration information, to configure a
plurality of data input, data output and control communication paths among the plurality
of fixed and differing computational elements for a plurality of media functional modes.

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61 (New). The apparatus of claim 60, wherein the plurality of media functional
modes comprises an acquisition mode and a traffic mode.

62 (New). The apparatus of claim 61, wherein the acquisition mode comprises a
20 channel acquisition mode and a control processing mode.

63 (New). The apparatus of claim 61, wherein the traffic mode comprises a voice
reception mode, a voice transmission mode, and a control processing mode.

25 64 (New). The apparatus of claim 61, wherein the traffic mode comprises a data
reception mode, a data transmission mode, a data processing mode, and a control
processing mode.

S/N 10/040,100

65 (New). The apparatus of claim 64, wherein the control processing mode comprises processing of a plurality of GSM control channels, the plurality of GSM control channels comprising a broadcast control channel (BCCH), a frequency-correction channel, a synchronization channel (SCH), a plurality of common control channels (CCCH), a slow
5 associated control channels (SACCH), and a fast associated control channel (FACCH).

66 (New). The apparatus of claim 60, wherein the interconnection network is further adapted to configure the plurality of data input, data output and control communication paths among the plurality of heterogeneous computational elements by providing circuit-
10 switched connections for corresponding transfer of data input, data output and control information.

67 (New). The apparatus of claim 60, wherein the interconnection network is further adapted to configure the plurality of data input, data output and control communication
15 paths among the plurality of heterogeneous computational elements by providing routing of data packets for corresponding transfer of data input, data output and control information.